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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/805,824 | 03/13/2001 | Jason Wee Peng Ng | 20568000700 | 4449 |

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EXAMINER

BAYARD, EMMANUEL

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2631 | |

DATE MAILED: 08/04/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/805,824

Applicant(s)

NG ET AL.

Examiner

Emmanuel Bayard

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2-6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Cafarella et al U.S. Patent No 6,067,313.

As per claim 1, Cafarella et al teaches a method for transmitting comprising: providing an encoding alphabet comprising a plurality of information characters (see col.4, lines 13-18 and col.5, lines 59-65 and col.6, lines 5-15); producing at least a first waveform associated with a first information character (see figs. 1-2, 5-7 elements 301, 1121, 1141 and col.3, lines 1-67 and col.5, lines 8-20 and col.6, lines 16-20) ; producing at least a second waveform associated with said first information character (see figs.1-2, 5-7 elements 302, 1122, 114n and col.3, lines 1-67 and col.5, lines 8-20 and col.6, lines 16-20); producing a third waveform by combining said first and second waveforms (see figs. 1, 5-7 element 36 and col.3, lines 39-67 and col.5, lines 17-20 and col.6, lines 30-50) thereby defining a symbol; and transmitting said third waveform (see figs. 1-2, 5-7 element 44 and col.7, line 22).

As per claim 2, Cafarella does teach said third waveform comprises one cycle of said first waveform and one cycle of said second waveform (see figs 1-2, 5-6).

As per claim 3, Cafarella does teach producing a fourth waveform representing a second information character (See figs. 1-2, 5-6 element 30m).

As per claim 4, Cafarella inherently teaches wherein said third waveform and said fourth waveform have the same period.

As per claim 5, Cafarella inherently teaches wherein said third and fourth waveforms have the same period.

As per claim 6, Cafarella inherently teaches said first waveform and said second waveform each represents said first character information.

As per claim 7, Cafarella inherently teaches said first waveform and said second waveform are identical waveforms.

As per claim 8, Cafarella inherently teaches said first waveform and said second waveform have different periods.

As per claim 9, Cafarella inherently teaches said first waveform and said second waveform together represent said first character information.

As per claim 10, Cafarella inherently teaches producing at least a fourth waveform, wherein said producing a third waveform includes combining said fourth waveform with said first and second waveforms.

As per claim 11, Cafarella inherently teaches wherein said first waveform, said second waveform, and said fourth waveform are different waveforms, which together represent said first information character.

A method for communication between a transmitter and a receiver comprising:
generating an analog waveform including generating at least a first 4 waveform (see figs. 1-2, 5-

7 elements 301-30m, 1121-112n) corresponding to an information character of an encoding alphabet (see col.2, lines 10-25 and col.3, lines 2-67 and col.4, lines 1-19 and col.8, lines 47-48), said first waveform defining a symbol, said first waveform having a first period; and transmitting, from said transmitter (see fig.2 element 44) to said receiver (see fig.2 element 46), a source signal characterized by said analog waveform, said generating at least a first waveform (see element 301) including ; generating a second waveform (see element 302) having a period less than said first period; generating a third waveform (see element 30m-1) having a period less than said first period, said second and third waveforms representing said information character ; combining (see element 36) said second and third waveforms to produce said first waveform.

As per claim 13, Cafarella inherently teaches wherein said first waveform comprises one cycle of said second waveform and one cycle of said third waveform.

As per claim 14, Cafarella inherently teaches wherein said generating an analog waveform further includes generating a fourth waveform corresponding to another information character of said encoding alphabet, wherein a period of said fourth waveform is equal to said first period.

As per claim 15, Cafarella inherently teaches said second and third waveforms, each is selected from the group consisting of sinusoidal, ramp, asymmetric, sawtooth, square, and channel-optimized waveforms.

As per claim 16, Cafarella inherently teaches wherein said second and third waveforms are identical, so that said information character is redundant in said first waveform to increase robustness of said source signal.

Art Unit: 2631

As per claim 17, Cafarella inherently teaches wherein said second and third waveform together represent said information character.

As per claim 18, Cafarella inherently teaches wherein said second waveform represents said information character and said third waveform represents said information character, so that said information character occurs more than once in said first waveform to increase robustness of said source signal

As per claim 19, Cafarella inherently teaches second and said third waveforms are different waveforms.

As per claim 20, Cafarella inherently teaches wherein said second waveform and said third waveform have different periods, the sum of which is equal to said first period.

As per claim 21, Cafarella inherently teaches wherein said periods of said second and said third waveform each is one-half of said first period.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Higgins U.S. patent No 5,390,198 teaches a soft decision viterbi decoder for M-ary convolutional codes.

Lye et al U.S. patent No 6,476,744 B1 teaches a method and apparatus for generating pulses from analog waveforms.

Asada et al U.S. patent No 6,553,535 B1 teaches a power efficient communication protocol.

Art Unit: 2631

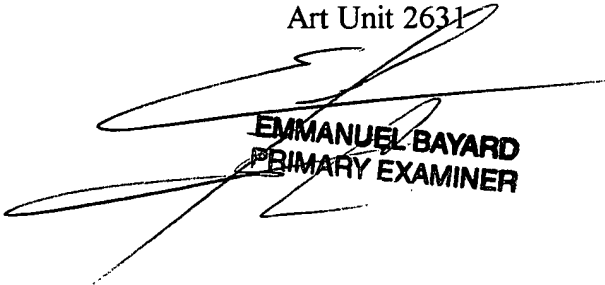
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 703 308-9573. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 703 306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard
Primary Examiner
Art Unit 2631

8/2/04



EMMANUEL BAYARD
PRIMARY EXAMINER